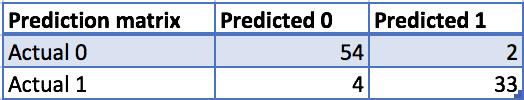
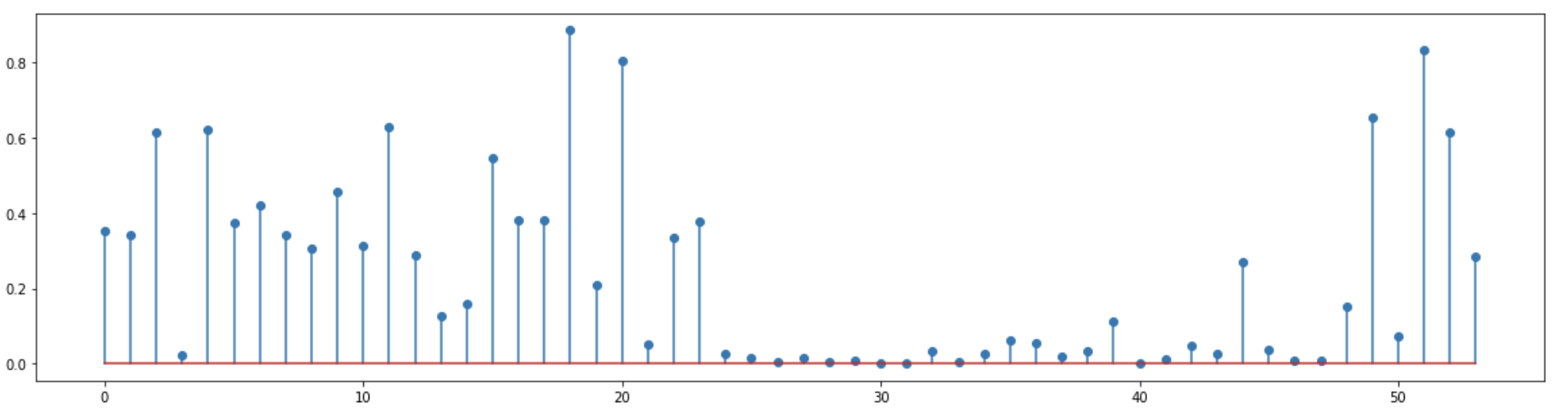
**Q2)**

**a)**

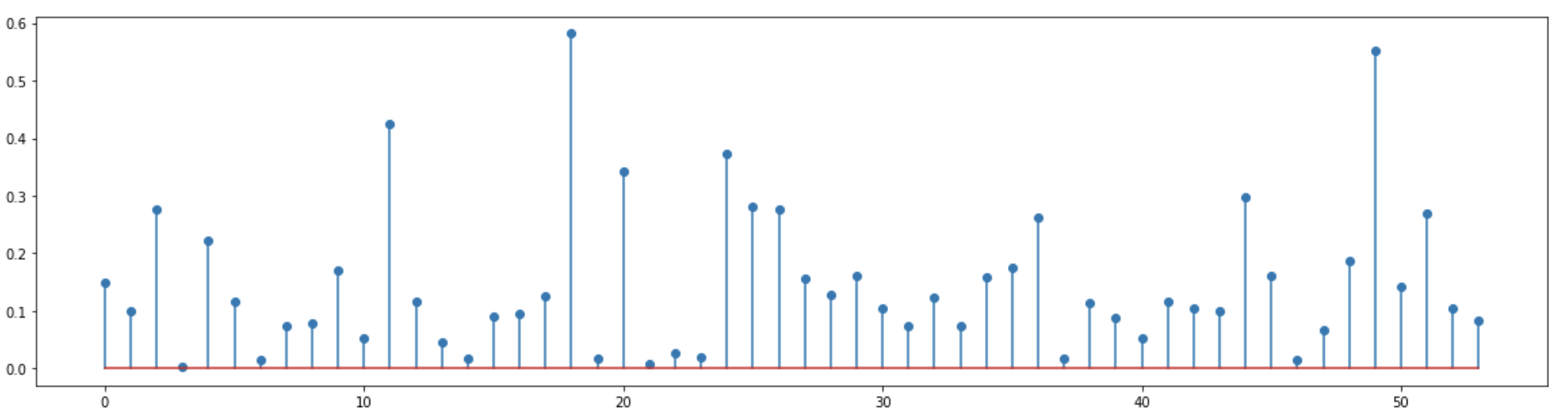
****

The prediction accuracy is 93.54%.

**b)** Stem plot for class 1

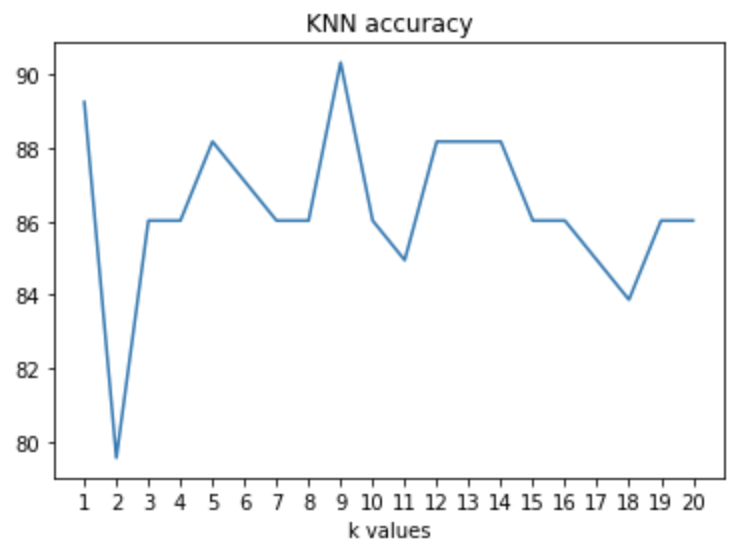
****

Stem plot for class 0

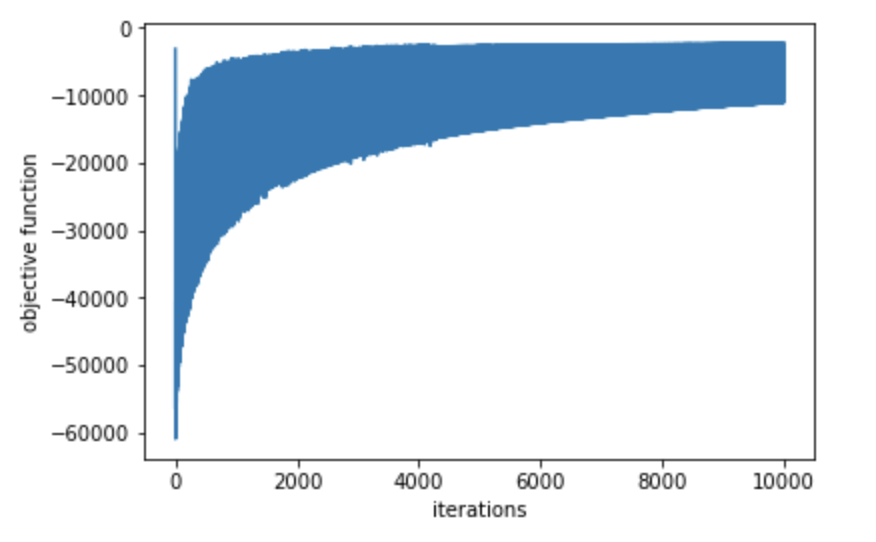
****

The value for the theta parameters for dimension 16 and 52 indicate that spam mails are more likely to contain “ ! “ and word “free”.

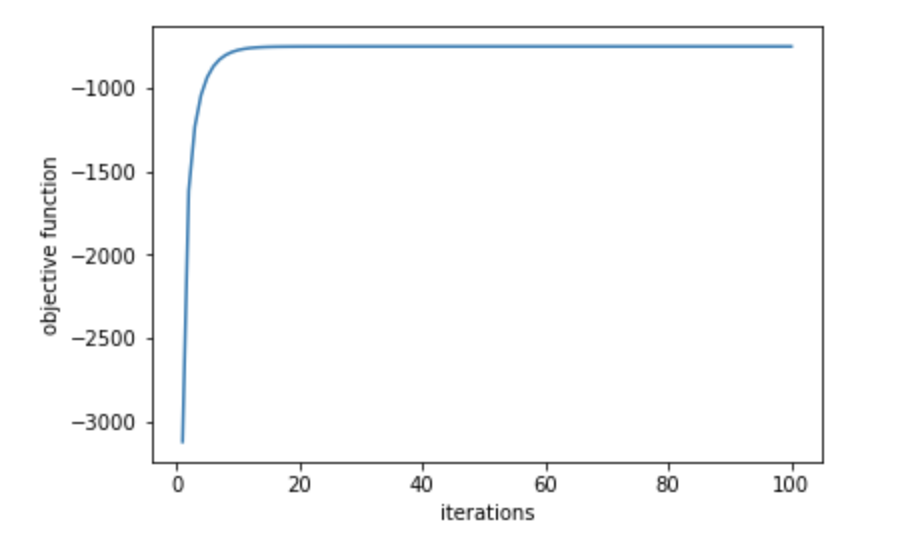
**c)** KNN accuracy plot

****

**d)**

****

**e)**

****

The accuracy for the newton method on test data is 91.39%.